

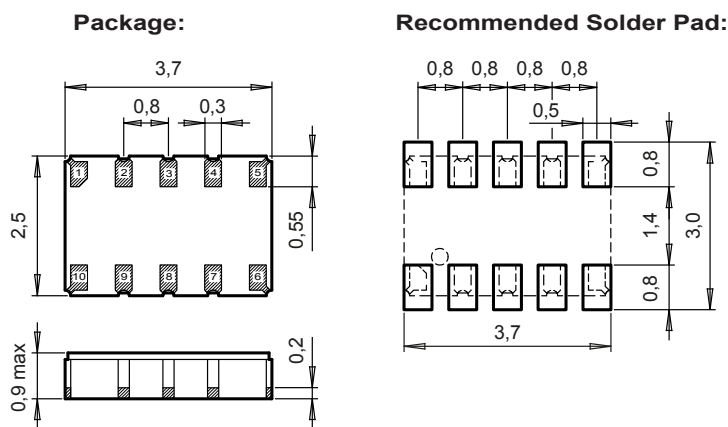
# RV-3129-C3

Real Time Clock Module with I<sup>2</sup>C-Bus



100% leadfree, RoHS - compliant

## DIMENSIONS



All dimensions in mm typical

**Extremely Accurate RTC Module with embedded Xtal.**  
**I<sup>2</sup>C Interface**  
**Temperature Compensation**  
**Automotive qualified, according to AEC-Q200 Rev. C**

Option A:	Calibrated	
Temperature	Time Deviation	
@ +25°C	± 0.26 s/day	± 3ppm
0°C to +50°C	± 0.35 s/day	± 4ppm
-10°C to +60°C	± 0.44 s/day	± 5ppm
-40°C to +85°C	± 0.52 s/day	± 6ppm
-40°C to +125°C	± 0.70 s/day	± 8ppm

Option B:	Default	
Temperature	Time Deviation	
@ +25°C	± 0.26 s/day	± 3ppm
0°C to +50°C	± 0.44 s/day	± 5ppm
-10°C to +60°C	± 0.87 s/day	±10ppm
-40°C to +85°C	± 2.17 s/day	±25ppm
-40°C to +125°C	± 2.60 s/day	±30ppm

## BLOCKDIAGRAM:

## DESCRIPTION:

The RV-3129-C3 is an ultra miniature Real-Time-Clock Module with embedded Crystal. This RTC has an I<sup>2</sup>C Bus (2-wire Serial-Interface) and offers temperature compensated time. The STC-Smart Temperature Compensation is calibrated in the factory and leads to a very high time-accuracy of ± 6ppm from -40°C to +85°C and ± 8ppm from -40°C to +125°C.

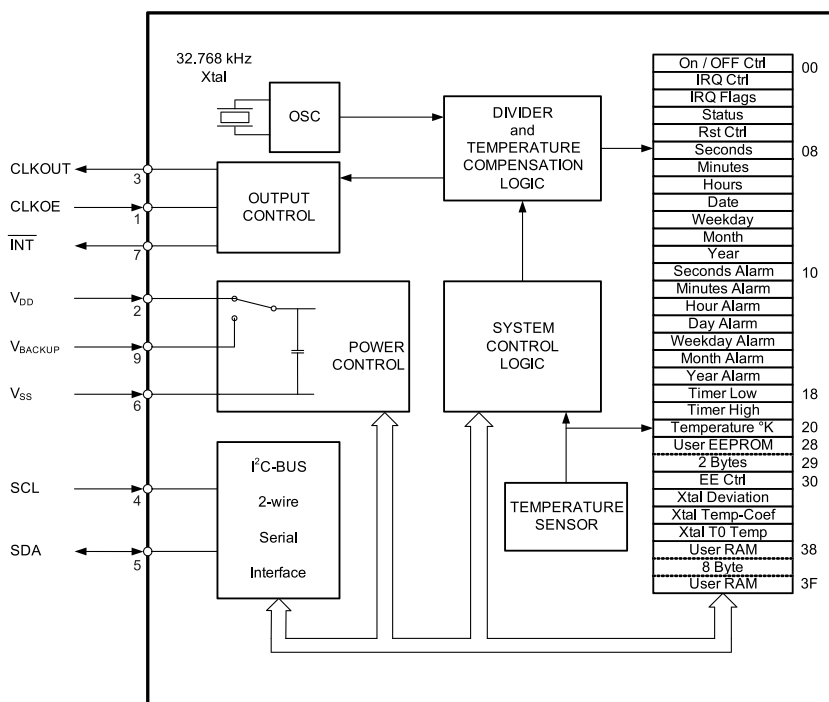
Beside standard RTC functions, it includes a Backup-Battery Input with internal switchover function, a programmable Trickle-charge circuitry, an integrated Temperature Sensor with digital-output and offers 8 Bytes RAM and 2 Bytes EEPROM for customer's application.

The calendar function tracks year and leap-year flags. The clock tracks second, minute and hour in 24-hour format. Programmable alarm setting and universal timer functions increase flexibility.

For pick-and-place equipment, the parts are available in 12 mm tape:

7" (178 mm) reel with 1'000 parts

7" (178 mm) reel with 3'000 parts



## ELECTRICAL CHARACTERISTICS AT 25°C:

	Symbol	Condition	Min.	Typ.	Max	Unit
Supply voltage	$V_{DD}$	Time keeping	1.3		5.5	V
Supply voltage	$V_{DD}$	Temp. comp.	1.8		5.5	V
Current consumption	$I_{DDO}$	$V_{DD} = 3V$		800	1000	nA
CLKOUT frequency		Progr.	32.768/1024/32/1			Hz
Frequency Tolerance	$\Delta F/F$	@ 25°C		±10	±20	ppm
Freq.vs. Temp.	$\Delta F/F_{TOPR}$	$20 \leq T_0 \leq 30$	$-0.035 \text{ ppm}/^\circ\text{C}^2 (T - T_0)^2 \pm 10\%$			ppm
Aging first year	$\Delta F/F$	@ 25°C			± 3	ppm
Time accuracy Opt. A	$\Delta t/t$	@ 25°C			±0.26	s/day
		-40 to +85°C			±0.52	s/day
Time accuracy Opt. B	$\Delta t/t$	@ 25°C			±0.26	s/day
		-40 to +85°C			±2.17	s/day

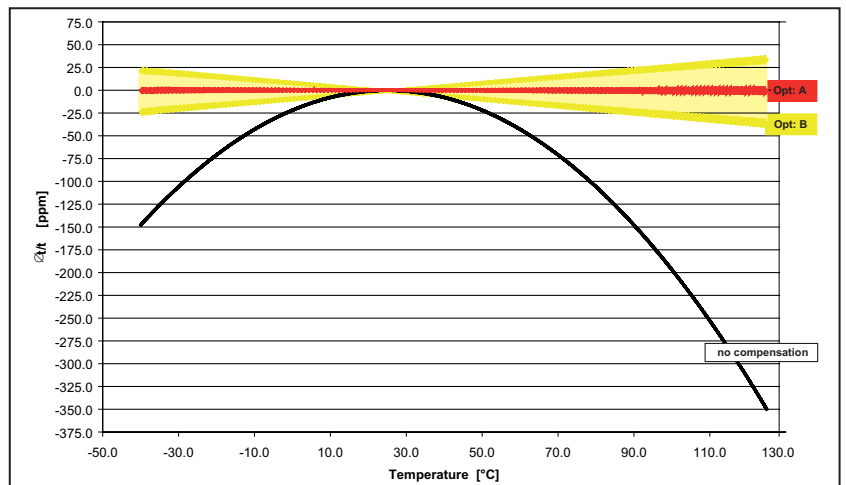
## ENVIRONMENTAL CHARACTERISTICS:

		Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
TA Operating temperature range		-40 to +85°C	
TB Extended oper. temp. range		-40 to +125°C	
Shock resistance	$\Delta F/F$	5000 g, 0.3 ms, 1/2 sine	± 5 ppm
Vibration resistance	$\Delta F/F$	20 g / 10–2000 Hz	± 5 ppm

## PACKAGE, TERMINATIONS AND PROCESSING:

Package-Type	Termination	Processing
SON 10-pin	For SMD mounting Au plated pads	Reflow soldering 260°C/20 s max.

## FREQUENCY TEMPERATURE CHARACTERISTICS:



## PIN CONNECTIONS TOP VIEW:

Pin	Connection
1	CLKOE CLK Output Enable
2	$V_{DD}$ Supply Voltage
3	CLKOUT Clock Output
4	SCL Serial Clock Input
5	SDA Serial Data
6	$V_{SS}$ Ground
7	INT Interrupt Output
8	N.C. not connected
9	$V_{BACKUP}$ Backup Supply Voltage
10	N.C. not connected

All specifications subject to change without notice.



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